

Europe's energy decision makers back CO2 capture and storage technology

A new survey of over 500 key energy decision makers from across Europe has found a strong appetite for the development of CO2 capture and storage technologies – abbreviated to CCS – in Europe as a way of reducing emissions of carbon dioxide. The survey was funded by the Research Directorate of the European Commission, coordinated by DNV, and directed at the energy industry, researchers, government, environmental groups and parliamentarians and respondents from 28 European nations participated.

Dr Simon Shackley, from the University of Manchester, who led the research, said:

“It is clear from the results of this survey of over 500 of the key players in the European energy industry and policy making that there is strong support for the development and implementation of technologies for the capture of CO2 from power plants and its storage in geological reservoirs. The technology is now being seen as necessary if Europe is to meet the demanding CO2 reduction targets that are in the process of being adopted. The perceived advantages of CO2 capture and storage are that it can be implemented over the next few decades and has the potential to significantly reduce CO2 emissions rapidly in most countries. The key concerns expressed in the survey are the relatively high cost at present of CO2 capture and the effect of investment in this technology upon development of renewable sources of energy”.

The main findings of the survey are summarised below.

Need for CO2 Capture and Storage

- Three quarters thought that widespread use of CCS was **definitely** or **probably necessary** to achieve deep reductions in CO2 emissions between now and 2050 in their own country.
- Only one in eight considered that CCS was probably or definitely **not** necessary to achieve deep reductions in CO2 emissions by 2050.

Risk Perceptions of CO2 Capture and Storage

- The **environmental and health and safety risks** of CCS were regarded by the majority of respondents as being **moderate or minimal**. For most risks, 60 to 80% thought that there would be no risks or that the risks would be minimal, 15 to 30% thought that the risks would be moderate, whilst 2 to just over 10% thought that they would be very serious.
- The greatest risk identified was that of the **additional use of fossil fuels** necessary to provide the extra energy for CCS (the so-called 'energy penalty'). Nearly 50% thought that this was a very serious or moderate risk.
- Another risk which concerned 44% of the sample was that investment in CCS might have **negative impacts upon development of other low-carbon energy technologies** such as renewable energies. 51%, however, did not think that there would be negative impacts or thought that impacts might even be positive. A similar response was observed with respect to the possible impacts of CCS upon development of a more decentralised power generation system.

Incentives for CO2 Capture and Storage

- Half of the respondents thought that **incentives for CCS** should be set either at the same level as those for renewables (39%) or at a higher level (11%). By contrast, a third of the respondents consider that incentives for CCS should be lower than those for renewables. A further 12% felt that incentives for CCS were not needed at all.
- By far the most popular incentive mechanism is support for **Research, Development and Demonstration** (over 90% in favour), followed by an early commitment to extend the **EU Emissions Trading Scheme** with tighter emission caps (77% in favour, 8% against).

Environmental organisations are least enthusiastic about CO2 Capture and Storage

- Environmental organisations are the **most sceptical** about the role of CCS and have a more negative perception of the potential risks than other stakeholders.
- Environmental organisations also regard CCS as having a **strongly or at least moderately negative impact** upon investment in renewable energies, energy efficiency, energy demand reduction and movement towards a decentralised power generation system.
- Nevertheless, on balance, there are still **more respondents** from environmental organisations who believe that CCS is 'definitely' or 'probably necessary' in their own country (40%) than believe that it is 'probably' or 'definitely not necessary' (35%) (with a further 25% believing that CCS is 'only necessary if other options fail to live up to current expectations').

The Energy industry is most enthusiastic about CO2 Capture and Storage

- The **energy industry is most enthusiastic** about the role of CCS, including a low perception of the risks and generally not sharing the concerns regarding the adverse impacts of CCS upon investment in renewable energies.
- Researchers and governments tended to be somewhat closer to the views of the energy industry, whilst parliamentarians tended to be closer to the views of the environmental organisations.

Norway, the Netherlands and UK lead the way

- Strongest support for CCS was identified in Norway, Netherlands and UK.
- Not far behind in support for CCS are Belgium, Germany, France, Italy and Spain.
- CCS is most frequently regarded by European nations as probably necessary but with some potential risks and uncertainties, which need to be addressed before it can be more fully endorsed.
- The least enthusiastic countries are Sweden, Finland and Eastern European countries. Nevertheless, on balance, these countries are still more in favour of CCS than against its use.

Policy Recommendations

- Stronger financial incentives to support the implementation of CCS within Europe were strongly supported by all energy sector decision-makers in all countries surveyed (with the exception of some environmental organisations).
- There is strong support across-the-board for more research, development and demonstration of CCS technologies and the underlying science.
- More effort at communicating and evaluating the role of CCS in Eastern Europe and in some Scandinavian countries is necessary and existing EU projects are tackling this gap.

Many European nations are struggling to meet their Kyoto greenhouse gas emission targets for 2008-2012. Through inclusion of CCS in the EU Emissions Trading Scheme, it might be possible for countries with the most suitable conditions for CCS to trade the CO₂ reductions with other EU countries.